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EXAMINER

ZHEN, LI B

ART UNIT PAPER NUMBER

2194

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/740,076	THORNTON ET AL.	
	Examiner	Art Unit	
	Li B. Zhen	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-12 and 17-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-12 and 17-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1, 2, 4 – 12 and 17 – 30 are pending in the current application.

Response to Arguments

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 2, 4 – 12 and 17 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,112,225 to Kraft et al. [hereinafter referred to as Kraft, cited in the previous office action] in view of U.S. Patent No. 6,230,183 to Yocom et al. [hereinafter referred to as Yocom].**

5. As to claim 1, Kraft teaches the invention substantially as claimed including a job management apparatus [a system for processing a computer executable "aggregate" task by dividing it into subtasks and distributing the subtasks "on demand" to remotely located subscribing computers; col. 2, lines 1 – 13] for use in a batch job [aggregate task; col. 4, lines 1 – 19] execution system [coordinating computer 102; col. 4, lines 1 – 19] including a plurality of service providers in communication with the job management apparatus [allocates the subtasks among the peripheral computers 106; col. 4, lines 1 – 19], the apparatus comprising:

a client communications part which receives a batch job [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19] from a client [col. 6, line 66 – col. 7, line 8];

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an extracting part which extracts one or more task from the batch job [task scheduler 214 divides the aggregate task into independent subparts; col. 4, line 62 – col. 5, line 2]; and,

an assigning part which receives a request work signal from each of the plurality of service providers, that is available to perform work [task manager 206 in step 612 requests a subtask. This involves submitting a subtask request to the coordinating computer 102; col. 9, lines 17 – 29], each request work signal informing the assigning part of one or more function or service that the service provider can perform [To benefit the coordinating computer 102, the subtask request may be accompanied by a machine-readable description of the peripheral computer's hardware components, operating system, and the like; col. 9, lines 17 – 29], wherein the assigning part delegates each task to one of the service providers that can perform the function or service required [Upon receipt of the subtask (step 614), the peripheral computer 106 has "subscribed" to the coordinating computer's aggregate task; col. 9, lines 18 – 28] to perform the task [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28].

6. Although Kraft teaches the invention substantially, Kraft does not specifically teach an assigning part sending an idle assignment signal to each service provider from which the request work signal is received but for which there is not a task available, the idle signal informing the service provider to not send further request work signals until the service provider receives a work available signal.

However, Yocom teaches a job management apparatus [col. 3, lines 1-17] for use in a batch job execution system [col. 4, lines 48 – 55 and col. 7, lines 20 – 25] including a plurality of service providers [a cluster 90 of interconnected, cooperating computer systems 100; col. 4, lines 8 – 34], receiving a batch job [a work request 162 is received by a work manager 160; col. 5, lines 20 - 50], receiving a first signal from at least one of the plurality of service providers [each system 100 sends as additional data the Service Available Array for the system 100 sending the data, the number of servers 163 for each queue 161, and the number of idle servers 163 for each queue 161; col. 9, lines 8 - 25], and in response to the first signal delegating the task to one of the plurality

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of service providers for performing the task [col. 4, line 66 – col. 5, line 9], an assigning part sending an idle assignment signal to each service provider from which the request work signal is received but for which there is not a task available [the work manager 160 suspends the server 163 until a request 162 is available; col. 5, lines 21 - 50], the idle signal informing the service provider to not send further request work signals until the service provider receives a work available signal [start the server address space to run the work requests; col. 5, lines 30 – 50].

7. It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of sending an idle assignment signal to each service provider from which the request work signal is received but for which there is not a task available, the idle signal informing the service provider to not send further request work signals until the service provider receives a work available signal as taught by Yocom to the invention of Kraft because this allows management of the number of servers based on the performance goal classes of the queued work and the performance goal classes of competing work in the systems [col. 4, lines 8 – 23 of Yocom] and allows servers to be started as needed [col. 12, lines 30 – 35 of Yocom].

8. As to claim 9, Kraft as modified teaches a batch job execution system [a system for processing a computer executable "aggregate" task by dividing it into subtasks and distributing the subtasks "on demand" to remotely located subscribing computers; col. 2, lines 1 – 13 of Kraft] for communicating with at least one client [col. 6, line 66 – col. 7, line 8 of Kraft], comprising:

a job management apparatus in communication with the clients which receives a batch job [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19 of Kraft] from a client [col. 6, line 66 – col. 7, line 8 of Kraft], extracts a task from the batch job [task scheduler 214 divides the aggregate task into independent subparts; col. 4, line 62 – col. 5, line 2 of Kraft], and assigns the task [Upon receipt of the subtask (step 614), the peripheral computer 106 has "subscribed" to the coordinating computer's aggregate task; col. 9, lines 18 – 28 of Kraft];

a job database in communication with the job management apparatus which stores the batch job [a queue 161 of work requests 162; col. 4, lines 8 – 23 of Yocom];

a plurality of service providers [allocates the subtasks among the peripheral computers 106; col. 4, lines 1 – 19 of Kraft] in communication with the job management apparatus [col. 2, lines 1 – 13 and col. 4, lines 1 – 19 of Kraft] which receive the assigned task [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19 of Kraft], perform the task [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28 of Kraft], and return a result to the job management apparatus [result manager 216 receives the results of completed subtasks from the peripheral computers 106; col. 4, line 62 – col. 5, line 2 of Kraft]; and,

a plurality of provider managers [task manager 206, Fig. 2; col. 4, lines 48 – 61 of Kraft] in communication with the job management apparatus [col. 5, lines 3 – 13 of Kraft] and in communication with a corresponding subset of the plurality of service providers [The peripheral computer 106 includes a screen saver 204, a task manager 206; col. 4, lines 48 – 61 of Kraft] which monitors the tasks being performed on the service providers and provides status information to the job management apparatus [task manager 206...directs execution of the subtask, and manages transmittal of the completed subtask back to the coordinating computer 102; col. 5, lines 3 – 13 and col. 9, lines 10 – 17 of Kraft]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

9. As to claim 17, Kraft as modified teaches a method for preparing and executing a batch job by a batch job execution system [a system for processing a computer executable "aggregate" task by dividing it into subtasks and distributing the subtasks "on demand" to remotely located subscribing computers; col. 2, lines 1 – 13 of Kraft], comprising the steps of:

submitting a batch job with processing parameters to a job management apparatus [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19 and col. 6, line 66 – col. 7, line 8 of Kraft];

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storing the batch job in a job database [a queue 161 of work requests 162; col. 4, lines 8 – 23 of Yocom];

receiving a work request signal from each of a plurality of service providers that is available to perform work [col. 9, lines 17 – 29 of Kraft], each work request signal informing the job management apparatus of one or more function or service that the service provider can perform [subtask request may be accompanied by a machine-readable description of the peripheral computer's hardware components, operating system, and the like; col. 9, lines 17 – 29 of Kraft];

determining whether the batch job execution system is able to process the batch job [col. 7, lines 38 – 41 of Kraft];

extracting at least one task from the batch job [task scheduler 214 divides the aggregate task into independent subparts; col. 4, line 62 – col. 5, line 2 of Kraft];

delegating each task to one of the service providers that can perform the function or service required [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 38 – 41 of Kraft] to perform the task [col. 9, lines 18 – 28 of Kraft]; and

sending an idle assignment signal to each service provider from which the request work signal is received but for which there is not a task available, the idle signal informing the service provider to not send further request work signals until the service provider receives a work available signal [the work manager 160 suspends the server 163 until a request 162 is available; col. 5, lines 21 – 50]; and

sending a work available signal to each server provider that was previously sent the idle assignment signal but for which a task is available [start the server address space to run the work requests; col. 5, lines 30 – 50 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

10. As to claim 24, Kraft as modified teaches an article of manufacture including: an information storage medium wherein is stored information comprising [col. 5, lines 57 – col. 6, lines 3 of Kraft];

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a client communications software component which receives a batch job from a client [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19 and col. 6, line 66 – col. 7, line 8 of Kraft];

an extracting software component which extracts one or more task from the batch job [task scheduler 214 divides the aggregate task into independent subparts; col. 4, line 62 – col. 5, line 2 of Kraft]; and,

an assigning software component which receives a request work signal from each of a plurality of service providers that is available to perform work [task manager 206 in step 612 requests a subtask; col. 9, lines 17 – 29 of Kraft], each request work signal informing the assigning part of the function or service that the service provider performs [To benefit the coordinating computer 102, the subtask request may be accompanied by a machine-readable description of the peripheral computer's hardware components, operating system, and the like; col. 9, lines 17 – 29 of Kraft];

wherein the assigning part delegates each task to one of the service providers that can perform the function or service required [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 38 – 41 of Kraft] to perform the task [col. 9, lines 18 – 28 of Kraft]; and

wherein the assigning part sends an idle assignment signal to each service provider from which the request work signal is received but for which there is not a task available [the work manager 160 suspends the server 163 until a request 162 is available; col. 5, lines 21 – 50 of Yocom], the idle signal informing the service provider to not send further request work signals until the service provider receives a work available signal [start the server address space to run the work requests; col. 5, lines 30 – 50 of Yocom].

11. As to claim 2, Kraft teaches the plurality of service providers are operating on a plurality of machines [system 100 includes a coordinating computer 102 connected to multiple peripheral computers 106; col. 4, lines 4 – 18].

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12. As to claim 4, Kraft teaches at least one contact part which receives a status report signal from the service providers, which updates the status of the task being performed by the service provider [col. 7, line 42 – col. 8, line 5 of Kraft].

13. As to claim 5, Kraft as modified teaches the work request signal specifies a minimum frequency at which the status report signal will be sent to the contact part [col. 7, lines 52 – 57 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

14. As to claim 6, Kraft teaches the status report signal informs the contact part of completion of the task [completion messages; col. 7, lines 42 – 66].

15. As to claim 7, Kraft as modified teaches a job database which stores the batch job upon receipt from the client as jobs are executed by batch job execution system [a queue 161 of work requests 162; col. 4, lines 8 – 23 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

16. As to claim 8, Kraft as modified teaches retrieving part, which retrieves the batch job from the job database when the batch job is to be executed [col. 4, line 66 – col. 5, line 9 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

17. As to claim 10, Kraft as modified teaches the provider manager in response to a request to increase capacity from the job management apparatus assigns additional service providers [start new servers; col. 13, lines 23 – 41 of Yocom] to receive tasks from the job management apparatus [col. 7, lines 29 – 43 of Kraft]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

18. As to claim 11, Kraft as modified teaches if the service provider fails to complete its assigned task within a predetermined time, the corresponding provider manager

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communicates with the service provider, and informs the job management apparatus of the task status in response to the communication with the service provider [col. 6, lines 55 – 60 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

19. As to claim 12, Kraft teaches the provider manager informs the service provider performing the task to terminate performance of the task in response to a signal received from said job management apparatus [col. 3, lines 1 - 5].

20. As to claim 18, Kraft as modified teaches retrieving the batch job from the batch job database prior to the step of extracting at least one task [col. 4, line 66 – col. 5, line 9 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

21. As to claim 19, Kraft teaches delegating a plurality of tasks to the plurality of service providers to be performed in parallel [other aggregate tasks have been distributed concurrently; col. 7, line 67 – col. 8, line 5 of Kraft].

22. As to claim 20, Kraft teaches receiving a status report signal from the service provider performing the task, which updates the status of the task being performed [col. 7, lines 42 – 67].

23. As to claim 21, Kraft as modified teaches determining whether the batch job execution system is able to process the batch job [col. 7, lines 29 – 43 of Kraft] and assigning additional service providers to perform tasks for the job management apparatus if it is determined that the batch job execution system is unable to process the job [start new servers; col. 13, lines 23 – 41 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

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24. As to claim 22, Kraft as modified teaches communicating with the service provider performing the task after a predetermined time [col. 7, line 42 – col. 8, line 5 of Kraft]; informing the job management apparatus of the tasks status; and, the job management apparatus determining whether to re-assign the task or wait for task completion in response to the step of updating the task status [col. 6, line 47 – col. 7, line 7 of Yocom]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

25. As to claim 23, Kraft teaches terminating the step of performing the task in response to receiving a signal from the job management apparatus, prior to the step of completing the task [col. 3, lines 1 - 5].

26. As to claim 25, Kraft teaches the assigning software component monitors which service providers are able to perform a task [col. 7, lines 29 – 43].

27. As to claim 26, this is rejected for the same reasons as claim 4 above.

28. As to claim 27, this is rejected for the same reasons as claim 5 above.

29. As to claim 28, Kraft as modified teaches a job database software component which stores the batch job upon receipt from the client [a queue 161 of work requests 162; col. 4, lines 8 – 23 of Yocom], wherein the client communications software component is in communication with the job database software component [task manager 206 may also maintain statistics regarding the historical application consumption of the peripheral computer's resources toward subtask computation; col. 5, lines 3 – 13 of Kraft]. As to the motivation for combining Kraft with Yocom, see the rejection to claim 1 above.

30. As to claim 29, this is rejected for the same reasons as claim 8 above.

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31. As to claim 30, Kraft as modified teaches at least one provider manager software component [col. 7, line 42 – col. 8, line 4 of Kraft] in communication with the plurality of service providers which monitors the tasks being performed on the service providers and provides status information to the job management software component [col. 7, line 42 – col. 8, line 4 of Kraft].

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,974,462 to Aman et al. teaches method for controlling the number of servers in an information handling system.

33. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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CONTACT INFORMATION


34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen
Examiner
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lbz


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